WHAT IS CLAIMED IS:

1. A method of removing gas from gas containing blood, comprising

introducing gas containing blood into a helical, circularly extending, gradually narrowing cross section, blood inlet channel and moving the blood through the narrowing cross section of the channel for accelerating the flow through the channel as the channel narrows;

introducing the accelerated blood flow into a following non-rotating cyclone eddy chamber at a rate sufficient for the blood phase of the gas containing blood to be urged into the radially outer region of the cyclone eddy chamber by centrifugal force and for the gas phase of the gas containing blood to be separated from the blood phase and to be urged into a radially inner region of the cyclone eddy chamber by the blood phase in that chamber;

discharging the blood phase and the gas phase separately from the cyclone eddy chamber after they have been separated from each other, wherein the gas phase is conducted from the radially inner center of the cyclone eddy current at a place located downstream of the blood inlet channel in a direction lying in the region between the axial forward direction and the tangential direction of movement of the cyclone eddy current of the blood in the cyclone eddy chamber.

2. The method of claim 1, further comprising forcing the gas containing blood with positive pressure through the blood inlet channel and into and through the cyclone eddy chamber.

3. A device for removing gas from gas containing blood, the device comprising:

a non-rotating cyclone eddy chamber shaped for passing gas containing blood in the form of a cyclone eddy current for producing a centrifugal force that separates the blood into a blood phase in the radially outer cyclone eddy region and a gas phase in the radially inner cyclone eddy current region;

a cyclone inlet to the cyclone eddy chamber for gas containing blood; the cyclone inlet comprising at least one helically circularly extending blood inlet channel shaped for narrowing in funnel like manner, at least over part of its length in the direction of flow of blood therealong, in a helical circular path shaped for accelerating the flow of gas containing blood through the blood inlet channel; the blood inlet channel having an end section directed substantially tangentially into the cyclone eddy chamber spaced from the cyclone outlet;

a cyclone outlet from the cyclone eddy chamber and the blood phase axially spaced from the cyclone inlet;

the cyclone inlet and the cyclone outlet for the blood phase are arranged so that the cyclone eddy current rotates around as it moves through the cyclone eddy chamber; without reversal of its directional flow from the cyclone inlet to the cyclone outlet;

a gas outlet from the cyclone eddy chamber separated from the cyclone outlet for the blood phase for discharge of the gas phase from the cyclone eddy chamber; the gas outlet being downstream of the blood inlet channel and in the radially inner center of the cyclone eddy current path, and the gas outlet extending in a

direction which lies in the region between the axial forward direction and a tangential direction of movement of the cyclone eddy current.

4. The device of claim 3, wherein the gas outlet for the gas phase and the cyclone outlet for the blood phase are arranged coaxially, with the gas outlet within the cyclone outlet.

5. The device of claim 4, further comprising an outlet channel downstream of the cyclone outlet for the blood phase, and the gas outlet being arranged in the outlet channel following the cyclone outlet.

6. The device of claim 3, wherein the blood inlet channel is defined between a surrounding housing having an inner wall which defines an outer wall for the blood inlet channel and an insert body inserted in the surrounding housing and having an outer wall which defines an inner wall for the blood inlet channel, the housing inner wall and the insert outer wall being respectively shaped for defining the funnel shape of the blood inlet channel.

7. The device of claim 6, wherein the insert body includes at least one helically extending rib passing around the insert body; the rib, the outer wall of the insert body and the inner wall of the blood inlet channel of the housing defining a helically extending groove which defines the blood inlet channel.

8. The device of claim 7, wherein the housing inner wall maintains a substantially constant cross

section and the diameter of the insert body at the base of the groove defined between the windings of the helical rib becomes conically enlarged from a minimum diameter upstream toward the inlet of the blood inlet channel to a maximum diameter toward the downstream end of the blood inlet channel toward the cyclone eddy chamber.

9. The device of claim 7, wherein the helically extending rib is of such size and the housing is so shaped that the insert body is supported by the rib thereof on the inner housing wall.

10. The device of claim 7, wherein the insert body has an upstream end toward the inlet to the blood inlet channel and the upstream end has a central conically shaped tip which widens in the direction of flow of the blood.

11. The device of claim 10, wherein the insert body has a downstream end which narrows conically toward the cyclone eddy chamber.

12. The device of claim 7, wherein the insert body has a downstream end which narrows conically toward the cyclone eddy chamber.

13. The device of claim 7, wherein the cyclone eddy chamber and the helically shaped blood inlet channel have respective center lines which are aligned.

14. The device of claim 13, wherein the cyclone outlet for the blood phase has a center line

which is aligned with the center line of the cyclone eddy chamber.

15. The device of claim 7, wherein the cyclone eddy chamber has a cross-section which narrows in funnel like manner in the direction of flow of the blood through the cyclone eddy chamber at least towards the downstream end section of the cyclone eddy chamber.

16. The device of claim 3, wherein the cyclone eddy chamber has a cross-section which narrows in funnel like manner in the direction of flow of the blood through the cyclone eddy chamber at least towards the downstream end section of the cyclone eddy chamber.

17. The device of claim 3, further comprising a pressure supplying pump for pumping blood with positive pressure to the blood inlet channel.

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